

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R077XC058NM

Site Name: Deep Sand

Precipitation or Climate Zone: 14 to 18 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on nearly level to undulating landscapes on upland plains. Slopes are complex and range from 0 to 9 percent. Hummocks and small dunes are common. Direction of slope varies and is not significant. Elevation ranges from 3,550 to 4,300 feet above sea level.

Land Form:

1. Plain
2. Dune
- 3.

Aspect:

1. N/A
- 2.
- 3.

| | | |
|-----------------------------------|----------------|----------------|
| | Minimum | Maximum |
| Elevation (feet) | 3,550 | 4,300 |
| Slope (percent) | 0 | 9 |
| Water Table Depth (inches) | 54 | >72 |
| Flooding: | Minimum | Maximum |
| Frequency | None | Occasional |
| Duration | None | Brief |
| Ponding: | Minimum | Maximum |
| Depth (inches) | N/A | N/A |
| Frequency | N/A | N/A |
| Duration | N/A | N/A |

Runoff Class:

Negligible to medium.

CLIMATIC FEATURES

Narrative:

The climate of the area is “semi-arid continental”.

The average annual precipitation ranges from 14 to 18 inches. Variations of 5 inches, more or less, are common. Approximately 85 percent of the precipitation falls from April through October. Most of the summer precipitation falls in the form of high intensity-short duration thunderstorms, often accompanied by hailstorms.

Distinct seasonal changes and large annual and diurnal temperature changes characterize temperatures. The average annual temperature is 58 to 61 degrees F with extremes of 30 degrees F below zero in the winter to 110 degrees F in the summer.

The average frost-free season is 190 to 210 days. The last killing frost being in early to mid-April and the first killing frost being in late October to early November.

Temperature and rainfall both favor warm-season perennial plant growth. Occasionally an early spring or late fall storm will occur from a prolonged front. This, along with occasional spring and fall showers, allows the cool-season component to occupy an important part of this plant community. The vegetation on this site can take advantage of the moisture at the time it falls. Because of the soil profile, little moisture can be stored for any length of time. Strong winds blow from February through May from the south, which rapidly dries out the soil during a period critical to cool-season plant growth.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

| | Minimum | Maximum |
|--|----------------|----------------|
| Frost-free period (days): | 181 | 216 |
| Freeze-free period (days): | 203 | 238 |
| Mean annual precipitation (inches): | 14 | 18 |

Monthly moisture (inches) and temperature (°F) distribution:

| | Precip. Min. | Precip. Max. | Temp. Min. | Temp. Max. |
|-----------|--------------|--------------|------------|------------|
| January | 0.37 | 0.45 | 22.0 | 56.6 |
| February | 0.35 | 0.49 | 25.8 | 62.0 |
| March | 0.44 | 0.68 | 31.5 | 69.0 |
| April | 0.62 | 1.05 | 39.6 | 77.0 |
| May | 1.67 | 2.10 | 49.4 | 85.5 |
| June | 1.89 | 2.63 | 58.4 | 92.8 |
| July | 2.15 | 2.75 | 62.1 | 93.6 |
| August | 2.41 | 2.95 | 60.7 | 91.9 |
| September | 1.88 | 2.63 | 53.9 | 85.9 |
| October | 1.31 | 1.73 | 42.6 | 77.1 |
| November | 0.51 | 0.57 | 30.5 | 65.3 |
| December | 0.42 | 0.60 | 23.1 | 58.1 |

Climate Stations:

| | | | | Period | | | |
|------------|---------------|----------|----------------------------------|--------|-----------------|-----|-----------------|
| Station ID | <u>291939</u> | Location | <u>Clovis, New Mexico</u> | From: | <u>11/24/10</u> | To: | <u>12/31/01</u> |
| Station ID | <u>292207</u> | Location | <u>Crossroads #2, New Mexico</u> | From: | <u>07/01/29</u> | To: | <u>05/31/01</u> |
| Station ID | <u>292854</u> | Location | <u>Elida, New Mexico</u> | From: | <u>05/01/14</u> | To: | <u>12/31/01</u> |
| Station ID | <u>294026</u> | Location | <u>Hobbs, New Mexico</u> | From: | <u>01/01/14</u> | To: | <u>12/31/01</u> |
| Station ID | <u>295617</u> | Location | <u>Melrose, New Mexico</u> | From: | <u>04/01/14</u> | To: | <u>12/31/01</u> |
| Station ID | <u>297008</u> | Location | <u>Portales, New Mexico</u> | From: | <u>01/01/14</u> | To: | <u>12/31/01</u> |
| Station ID | <u>298713</u> | Location | <u>Tatum, New Mexico</u> | From: | <u>06/01/19</u> | To: | <u>12/31/01</u> |

INFLUENCING WATER FEATURES**Narrative:**

This site is not influenced by water from a wetland or stream.

Wetland description:

| System | Subsystem | Class |
|--------|-----------|-------|
| N/A | | |

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES

Narrative:

These are excessively drained deep soils. Textures throughout the profile are typically fine sand. Permeability is rapid. The available water-holding capacity is low. The effective rooting depth is greater than 50 inches. If unprotected by plant cover and organic residues, these soils become wind blown and easily eroded resulting in unstable mobile dunes.

Parent Material Kind: Eolian sand

Parent Material Origin: Sandstone-unspecified

Surface Texture:

| |
|--------------------|
| 1. Fine sand |
| 2. Clay loam |
| 3. Loamy fine sand |

Surface Texture Modifier:

| |
|--------|
| 1. N/A |
| 2. |
| 3. |

Subsurface Texture Group: Sandy

Surface Fragments <=3" (% Cover): N/A

Surface Fragments >3" (% Cover): N/A

Subsurface Fragments <=3" (%Volume): 15 to 35

Subsurface Fragments >=3" (%Volume): N/A

| | Minimum | Maximum |
|--|------------------------|--------------------|
| Drainage Class: | <u>Somewhat poorly</u> | <u>Excessively</u> |
| Permeability Class: | <u>Impermeable</u> | <u>Rapid</u> |
| Depth (inches): | <u>50</u> | <u>>72</u> |
| Electrical Conductivity (mmhos/cm): | <u>0.00</u> | <u>16.00</u> |
| Sodium Absorption Ratio: | <u>0.00</u> | <u>4.00</u> |
| Soil Reaction (1:1 Water): | <u>6.1</u> | <u>9.0</u> |
| Soil Reaction (0.1M CaCl2): | <u>N/A</u> | <u>N/A</u> |
| Available Water Capacity (inches): | <u>3</u> | <u>6</u> |
| Calcium Carbonate Equivalent (percent): | <u>N/A</u> | <u>N/A</u> |

PLANT COMMUNITIES

Ecological Dynamics of the Site:

Plant Communities and Transitional Pathways (diagram)

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label:** HCPC

Plant Community Narrative: Historic Climax Plant Community

The aspect of this potential plant community is that of a tall-grass prairie dominated by sand bluestem, giant sandreed and Indiangrass. Scattered shrubs such as small soapweed yucca, southwestern rabbitbrush, sand sagebrush and shinnery oak also occur. An understory of short and mid-grasses, perennial and annual forbs is also present, fully occupying the wetted soil profile. Forb production fluctuates widely from year to year and season to season.

Canopy Cover:

| | |
|---|---------|
| Trees | 0 |
| Shrubs and half shrubs | 2 – 5 % |
| Ground Cover (Average Percent of Surface Area). | |
| Grasses & Forbs | 30 – 40 |
| Bare ground | 5 – 15 |
| Surface gravel | 0 – 4 |
| Surface cobble and stone | 0 |
| Litter (percent) | 45 – 60 |
| Litter (average depth in cm.) | 2 – 4 |

Plant Community Annual Production (by plant type): _____

| Plant Type | Annual Production (lbs/ac) | | |
|--------------------|----------------------------|-------|-------|
| | Low | RV | High |
| Grass/Grasslike | 1,328 | 1,577 | 1,826 |
| Forb | 128 | 152 | 176 |
| Tree/Shrub/Vine | 128 | 152 | 176 |
| Lichen | | | |
| Moss | | | |
| Microbiotic Crusts | | | |
| Total | 1,600 | 1,900 | 2,200 |

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|---|---------------------------|-------------------------|
| 1 | SCSC | Little Bluestem | 380 – 570 | 380 – 570 |
| 2 | ANHA | Sand Bluestem | 380 – 570 | 380 – 570 |
| 3 | BOCU | Sideoats Grama | 190 – 285 | 190 – 285 |
| 4 | ARDO4 | Giant Sandreed | 95 – 190 | 95 – 190 |
| 5 | SONU2 | Indiangrass | 57 – 95 | 57 – 95 |
| 6 | SPGI | Giant Dropseed | 57 – 95 | 57 – 95 |
| 7 | HENE5 HECO26 | New Mexico Feathergrass Needleandthread | 57 – 95 | 57 – 95 |
| 8 | BOHI2 | Hairy Grama | 38 – 95 | 38 – 95 |
| 9 | PASE5 ERSE DICOA | Sand Paspalum Red Lovegrass Fall Witchgrass | 57 – 95 | 57 – 95 |
| 10 | ARIST | Threeawn spp. | 57 – 95 | 57 – 95 |
| 11 | SPCR SPFL2 | Sand Dropseed Mesa Dropseed | 57 – 95 | 57 – 95 |
| 12 | 2GRAM | Other Grasses | 57 – 95 | 57 – 95 |

Plant Type - Forb

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|---|---------------------------|-------------------------|
| 13 | PENST PSLA3 | Penstemon spp. Lemon Scurfpea | 57 – 95 | 57 – 95 |
| 14 | STSY AMPS GAVI2 | Queensdelight Western Ragweed Woolly Beeblossom (gaura) | 57 – 95 | 57 – 95 |
| 15 | HEAN3 | Annual Sunflower | 19 – 57 | 19 – 57 |
| 16 | ERAN4 | Annual Wildbuckwheat | 19 – 57 | 19 – 57 |
| 17 | 2FORB | Other Forbs | 19 – 95 | 19 – 95 |

Plant Type – Tree/Shrub/Vine

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|--------------------------------|---------------------------|-------------------------|
| 18 | PRANW | Sand Plum | 57 – 95 | 57 – 95 |
| 19 | CHPU4 | Southwestern Rabbitbrush | 19 – 38 | 19 – 38 |
| 20 | YUGL | Small Soapweed Yucca | 57 – 95 | 57 – 95 |
| 21 | ARFI2 QUHA | Sand Sagebrush Shinnery Oak | 0 – 190 | 0 – 190 |
| 22 | 2SD | Other Shrubs | 38 – 95 | 38 – 95 |

Plant Type - Lichen

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|-------------|---------------------------|-------------------------|
| | | | | |
| | | | | |

Plant Type - Moss

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|-------------|---------------------------|-------------------------|
| | | | | |
| | | | | |

Plant Type - Microbiotic Crusts

| Group Number | Scientific Plant Symbol | Common Name | Species Annual Production | Group Annual Production |
|--------------|-------------------------|-------------|---------------------------|-------------------------|
| | | | | |
| | | | | |

Other grasses that could appear on this site include: plains lovegrass, Hall's panicum, field sandbur, spike dropseed, Indian ricegrass, bottlebrush squirreltail, tumblegrass, tumble lovegrass, windmillgrass, sixweeks grama, blue grama, black grama, gummy lovegrass, flatsedge and cane bluestem.

Other shrubs that could appear on this site include: broom snakeweed, pricklypear cactus, winterfat, ephedra, pale wolfberry, feather dalea, cholla cactus, mesquite and skunkbush sumac.

Other forbs that could appear on this site include: globemallow spp., mustard spp., paperflower, ground cherry, croton spp., dotted gayfeather, prairie coneflower, lemon beebalm, plains blackfoot, woolly dalea, verbena, smooth four o'clock, cocklebur and hairy goldenaster.

Plant Growth Curves

Growth Curve ID 5508NM

Growth Curve Name: HCPC

Growth Curve Description: Tall-grass prairie with an understory of short and mid-grasses and minor components of forbs and shrubs.

| Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------|------|-------|-------|-----|------|------|------|-------|------|------|------|
| 0 | 0 | 3 | 5 | 5 | 10 | 25 | 30 | 15 | 7 | 0 | 0 |

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitats which support a resident animal community that is characterized by pronghorn antelope, badger, swift fox, desert cottontail, spotted ground squirrel, hispid pocket mouse, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, ferruginous hawk, roadrunner, lesser prairie chicken, scaled quail, meadowlark, western box turtle, lesser earless lizard, round-tailed horned lizard, bullsnake and western diamondback rattlesnake.

Where large woody plants are present, scissor-tailed flycatcher, mourning dove, white-necked raven, mockingbird, western kingbird, loggerhead shrike, roadrunner, ferruginous and Swainson's hawks nest. Rock wren and ferruginous hawk occasionally nest on dunes. Bobwhite quail are sometimes associated with native plum thickets. Grasshopper and vesper sparrows utilize the site during fall migration and the marsh hawk hunts during the cooler months.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

| Hydrologic Interpretations | |
|-----------------------------------|-------------------------|
| Soil Series | Hydrologic Group |
| Brownfield | A |
| Church | D |
| Nutivoli | A |
| Penwell | A |
| Playa | D |
| Springer | A |
| Tivoli | A |

Recreational Uses:

This site offers recreation potential for hiking, horseback riding, nature observation, photography, quail and dove hunting, antelope hunting and predator hunting. The site is also attractive to dune bugging; however, this activity is destructive to the native vegetation, which stabilizes the dunes and will render them unstable. Care must be taken to confine the area of activity and control soil loss or use areas, which are already unstable and exercise adequate controls to keep them from spreading.

During years of abundant spring moisture, this site displays wildflowers in a wide spectrum of colors from May through August. A few fall blooming flowers also occur. If moisture is confined to the summer rainy period only, the view of a virtual “sea of grass” portrayed by waves of head high sand bluestem will be rewarding to those who appreciate a tall grass prairie.

Wood Products:

The natural potential plant community of this site affords little or no wood products.

Other Products:**Grazing:**

This site is suitable for grazing during all seasons of the year. It is most suitable for grazing by mature cattle due to the high composition of tall grasses and other coarse forage and browse. Sheep do not do well on this site. It will also accommodate minority proportions of goats. Grazing by goats will also be of value to control brush where woody plants have increased considerably or invaded. In general, cattle grazing will result in a decrease of palatable grasses and an increase in shrubs and undesirable forbs. Continuous yearlong grazing or grazing continually during the potential growing season will result in a decrease in the vigor and abundance of sand bluestem, Indiangrass, giant sandreed, sand paspalum and little bluestem. A corresponding increase will occur in dropseeds, threeawn spp., field sandbur, shinnery oak, small soapweed yucca and weedy forbs. Eventually, these will dominate the site leaving it depleted in productivity, grazing value and vulnerable to wind erosion. Well planned systems of deferred grazing, which vary the seasons of grazing and rest in pastures during successive years, will result in a balanced plant community, providing higher-quality forage and browse during all seasons of the year.

Other Information:**Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month****Similarity Index****Ac/AUM**

100 - 76

2.1 – 3.0

75 – 51

2.8 – 4.5

50 – 26

4.3 – 8.0

25 – 0

8.0 +

| Plant Part | Code | Species Preference | Code |
|-------------------|------|--------------------|------|
| Stems | S | None Selected | NS |
| Leaves | L | Preferred | P |
| Flowers | F | Desirable | D |
| Fruits/Seeds | F/S | Undesirable | U |
| Entire Plant | EP | Not Consumed | NC |
| Underground Parts | UP | Emergency | E |
| | | Toxic | T |

Plant Preference by Animal Kind:**Animal Kind:** Livestock**Animal Type:** Cattle

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|-------------------------|--------------------------|------------|--------------------|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Sand Bluestem | Andropogon hallii | EP | D | D | D | P | P | P | P | P | P | D | D | D |
| Little Bluestem | Schizachyrium scoparium | EP | D | D | D | P | P | P | P | P | P | D | D | D |
| Giant Sandreed | Calamovilfa gigantea | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Indiangrass | Sorghastrum nutans | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Giant Dropseed | Sporobolus giganteus | EP | D | D | D | P | P | P | P | P | P | D | D | D |
| New Mexico Feathergrass | Hesperostipa neomexicana | EP | D | D | D | P | P | P | D | D | D | D | D | D |
| Needleandthread | Hesperostipa comata | EP | D | D | D | P | P | P | D | D | D | D | D | D |
| Sand Paspalum | Paspalum setaceum | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Annual Sunflower | Helianthus annuum | EP | U | U | U | U | U | U | D | D | D | U | U | U |
| Sand Plum | Prunus angustifolia | L/S | D | D | D | D | D | D | D | D | D | D | D | D |

Animal Kind: Livestock

Animal Type: Goat

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|-----------------------|---------------------------------|------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Sand Plum | <i>Prunus angustifolia</i> | L/S | D | D | D | D | D | D | D | D | D | D | D | D |
| Shinnery Oak | <i>Quercus havardii</i> | L/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S | N/S |
| Southwest Rabbitbrush | <i>Chrysothamnus pulchellus</i> | L/S | D | D | U | U | U | U | U | U | U | U | D | D |
| Sand Sagebrush | <i>Artemisia filifolia</i> | L/S | D | D | D | D | D | D | D | D | D | D | D | D |
| Penstemon | <i>Penstemon</i> spp. | EP | U | U | U | D | D | D | D | D | D | U | U | U |

Animal Kind: Wildlife

Animal Type: Antelope

| Common Name | Scientific Name | Plant Part | Forage Preferences | | | | | | | | | | | |
|-------------------------|---------------------------------|------------|--------------------|---|---|---|---|---|---|---|---|---|---|---|
| | | | J | F | M | A | M | J | J | A | S | O | N | D |
| Penstemon | <i>Penstemon</i> spp. | EP | U | U | U | D | D | D | D | D | D | U | U | U |
| Annual Sunflower | <i>Helianthus annuum</i> | EP | U | U | U | U | U | U | D | D | D | U | U | U |
| Annual Wildbuckwheat | <i>Eriogonum annuum</i> | EP | U | U | U | D | D | D | D | D | D | U | U | U |
| Fall Witchgrass | <i>Digitaria cognata</i> | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| Sand Paspalum | <i>Paspalum setaceum</i> | EP | D | D | D | D | D | D | D | D | D | D | D | D |
| New Mexico Feathergrass | <i>Hesperostipa neomexicana</i> | EP | U | U | U | D | D | D | U | U | U | D | D | D |
| Needleandthread | <i>Hesperostipa comata</i> | EP | U | U | U | D | D | D | U | U | U | D | D | D |

SUPPORTING INFORMATION

Associated sites:

| Site Name | Site ID | Site Narrative |
|-----------|---------|----------------|
| | | |

Similar sites:

| Site Name | Site ID | Site Narrative |
|-----------|---------|----------------|
| | | |

State Correlation:

This site has been correlated with the following sites: _____

Inventory Data References:

| Data Source | # of Records | Sample Period | State | County |
|-------------|--------------|---------------|-------|--------|
| | | | | |

Type Locality:

State: New Mexico

County: Chaves, Curry, De Baca, Lea, Roosevelt

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? Yes ☐ No ☐

General Legal Description: _____

Relationship to Other Established Classifications:

Other References:

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern High Plains 77 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: Lea, Roosevelt and Curry.

Characteristic Soils Are:

Brownfield, Church, Nutivoli, Penwell, Playa Springer, Tivoli

Other Soils included are:

Site Description Approval:

{PRIVATE} Author

Don Sylvester

Date

06/05/80

Approval

Don Sylvester

Date

06/05/80

Site Description Revision:

{PRIVATE} Author

Elizabeth Wright

Date

02/20/03

Approval

George Chavez

Date

2/24/03